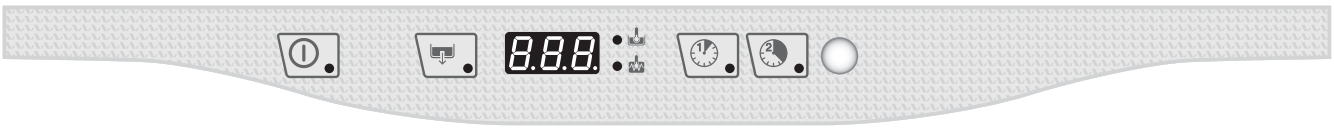
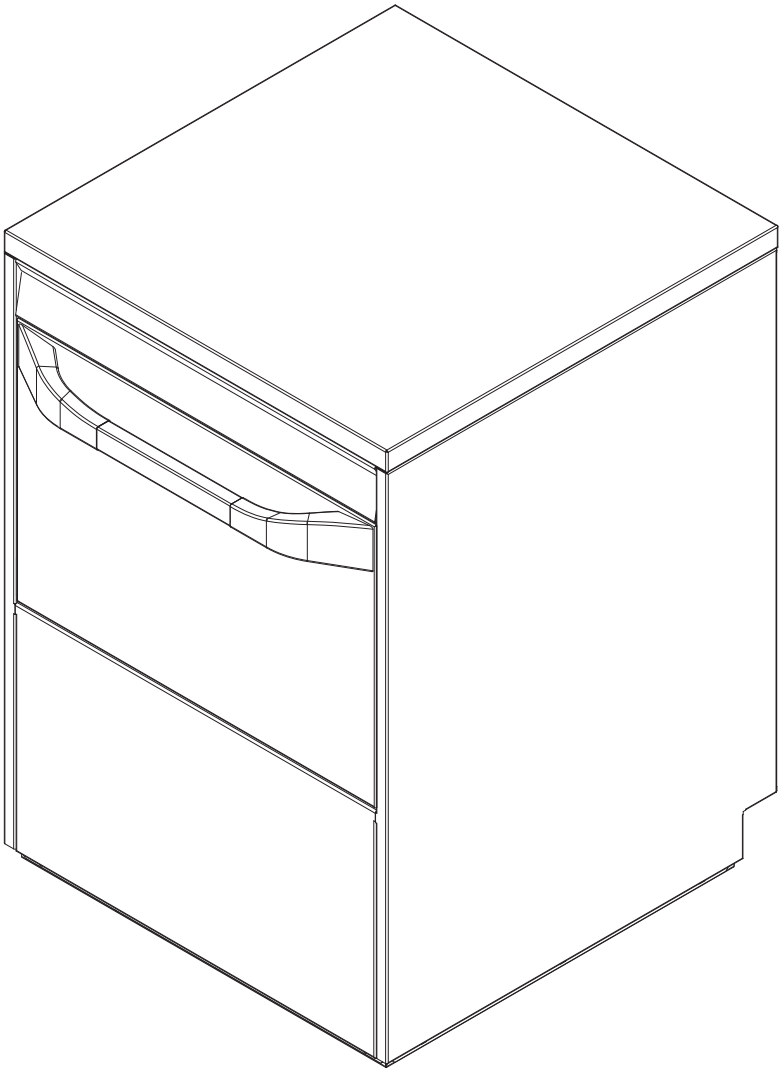
SERVICE MANUAL



CONTENTS:

This document contains the instructions to set electronic board parameters via user interface for following dishwashers:



EDITION: **05.2016**

INDEX

1 KEYBOARDS

1.1 UNDERCOUNTER Style

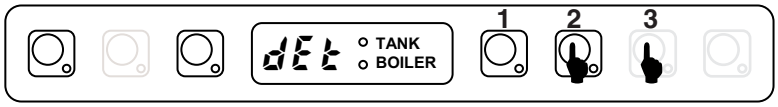


Fig. 1 Detergent dispenser Manual Activation

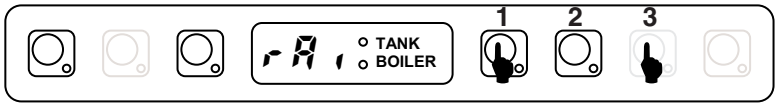


Fig. 2 Rinse Aid Dispenser Manual Activation

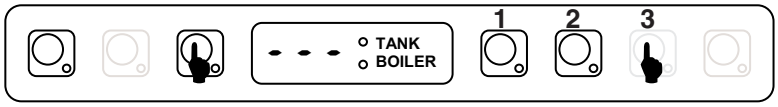


Fig. 3 Rinse Pump Manual Activation (used to EMPTY BOILER)

SETTING MODES:

To enter into one setting mode (Figure 4), (Figure 5) the appliance should be in stand-by: switch on the appliance, no cycles selected. Is useful keep door open to avoid start cycle in case of not simultaneously pressure of the two keys.

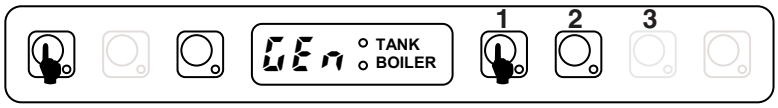


Fig. 4 Enter into General Parameters (Hold down buttons for at least five seconds).

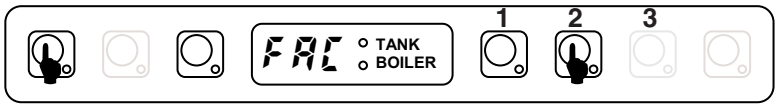


Fig. 5 Enter into Factory Parameters (Hold down buttons for at least five seconds).

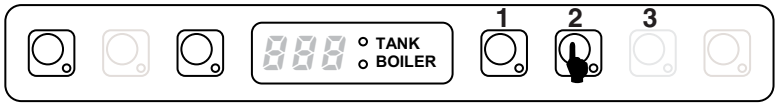


Fig. 6 Next Parameter Family OR Increase Parameter Value (in setting mode only)

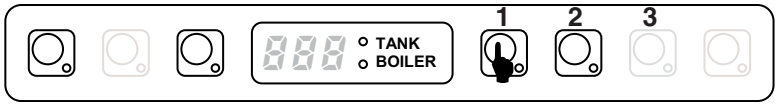


Fig. 7 Decrease Parameter Value (In setting mode only)

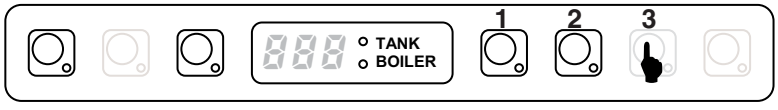
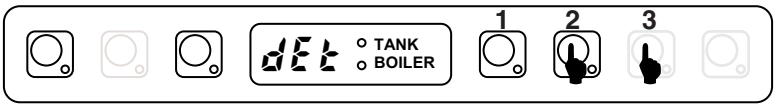


Fig. 8 Confirm Value and go to next Parameter (in setting mode only).

2 MANUAL ACTIVATION OF DETERGENT AND RINSE AID DISPENSERS

When replacing detergents may be necessary activate the dispensers to fill hoses.

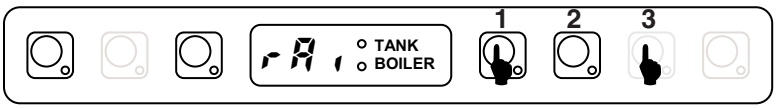
2.1 Detergent Dispenser Activation



Switch on the dishwasher.

Press and hold down BUTTON_2 and BUTTON_3 keys, after two 'beep' the detergent dispenser starts work for 20 sec.

2.2 Rinse Aid Dispenser Activation

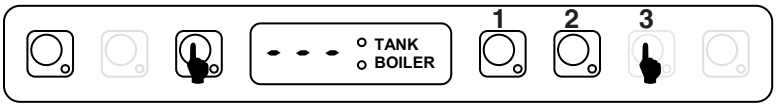


Switch on the dishwasher.

Press and hold down BUTTON_1 and BUTTON_3 keys, after two 'beep' the rinse aid dispenser starts work for 40 sec.

3 RINSE PUMP MANUAL ACTIVATION

Use this function to empty the boiler (if the dishwasher is not to be used for a long time, for maintenance operation: ex. before replacing main board).



Switch on the dishwasher.

Close the door and press and hold down DRAIN and BUTTON_3 keys. A buzzer signal indicates the rinse pump activation and the display shows three blinking lines. Three beeps indicate the cycle end.

4 DETERGENT AND RINSE AID DOSAGE

In this paragraph is explained how to set the working time for the detergent and rinse aid dispensers.
For each dispenser there are two parameters: the initial time and the time during cycle execution.

4.1 GEn General Parameters

Sym.	Parameter Description	Unit	Min	Max	Factory Default
d In	Initial Detergent Dosage (during filling tank)	[s]	0	240	90
r In	Initial Rinse Aid Dosage (starts when tank filled)	[s]	0	180	10
dEt	Detergent Dosage During Cycle Execution (during wash phase)	[s]	0	182 (*)	8
rA1	Rinse Aid Dosage During Cycle Execution (when refilling boiler)	[s]	0	62 (*)	4

How change the duration:

- Switch OFF and switch ON the dishwasher;
- Enter into the USER SETTING mode by pressing and hold down ON/OFF and BUTTON_1 keys for at least **five seconds** the display shows GEn (Figure 9);

- Press BUTTON_3. The display shows alternatively the symbol **d In** and the duration in seconds (Figure 10) and (Figure 11);
- Use BUTTON_1 key to decrease the duration and BUTTON_2 key to increase (Figure 11);
- After settled the duration press BUTTON_3 key to **store value**. The display shows the next parameter (Figure 12) and the corresponding value (Figure 13);
- In the same way is possible to change the other duration; when finished switch OFF and switch ON.

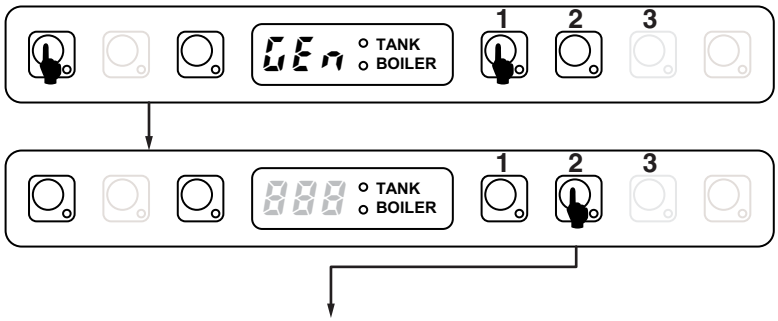


Fig. 9 Enter into User Mode (press for 5 sec).

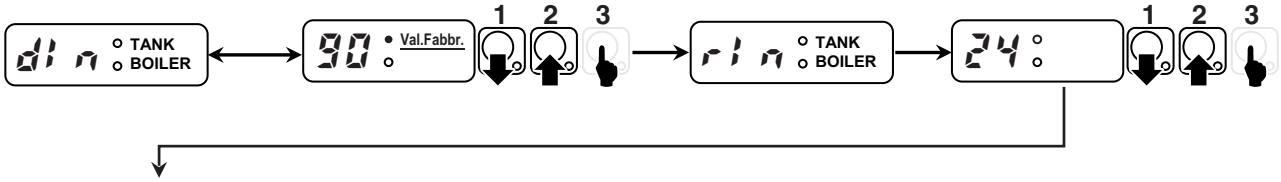


Fig. 10 Initial detergent dosage.

Fig. 11 Change duration. (Tank LED indicates default).

Fig. 12 Initial rinse aid dosage

Fig. 13 Change duration

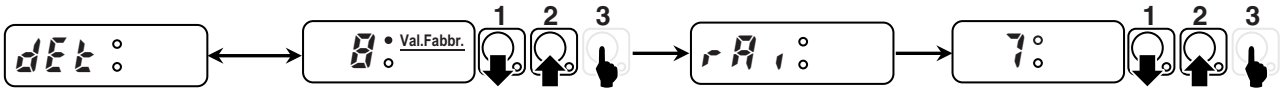


Fig. 14 Cycle detergent dosage.

Fig. 15 Change time activation (Tank LED indicates default)

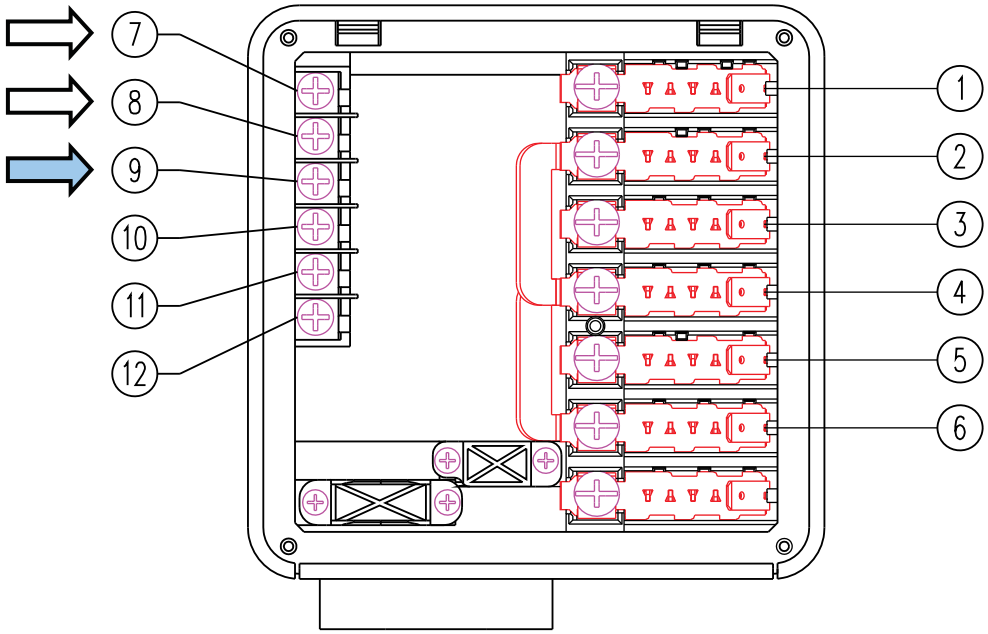
Fig. 16 Cycle rinse aid dosage.

Fig. 17 Change time activation.

(*) Note for external dispensers:

- if **dEt: 181** the **detergent dispenser** works when **WASHING PUMP** is being activated; at the same time voltage is supplied between connectors $\mathbf{L1_7–L1_9}$ (main terminal box);
- if **dEt: 182** the **detergent dispenser** works when **LOADING EV** is being activated to re-fill boiler level; at the same time voltage is supplied between connectors $\mathbf{L1_7–L1_9}$ (main terminal box);
- if **rAi: 61** the rinse aid dispenser works when **LOADING EV** is being activated to re-fill boiler level; at the same time voltage is supplied between connectors $\mathbf{L1_8–L1_9}$ (main terminal box);
- if **rAi: 62** the **rinse aid dispenser** works when **WASHING PUMP** is being activated; at the same time voltage is supplied between connectors $\mathbf{L1_8–L1_9}$ (main terminal box);

- For electrical connections refer to electric diagram -



Example

Suppose there is connected an **external detergent dispenser** with a probe into the tank. A typical setting could be:

`dIn: 0` the dispenser is not activated during filling tank;

`dEt: 101` the dispenser is supplied during washing phase and the probe automatically dose the right detergent amount.

5 COUNTERS

This Parameter Family collects cycle counters and water consumption counters.

For water consumption counters a flow meter must be installed. See `PPL` (calibration parameter) into `dPA` section (8 OTHER PARAMETERS).

5.1 CnE Counters

Sym.	Parameter Description	Unit	Min	Max	Factory Default
CYC	Cycles performed counter. CYC symbol and two numbers blink consecutively. The cycle number is obtained by joining the two numbers. Ex. CYC → 10 → 042 means 10042 cycles executed.	-			
cYc	Cycle counter (resettable). This counter is similar to CYC but is resettable by user (see rSt parameter below).	-			
nnc	Water Consumption (only for dishwashers with incorporated continuous water softener). Counts m^3 of water consumption.	[m^3]			
L	Water Consumption (only for dishwashers with incorporated continuous water softener). Counts litres of water consumption. The total consumption is given by adding nnc [m^3] and L [l] values.	[l]			
L rt	Water Consumption: resettable counter. [present up to software version 3.12] Counts the litres of water and is resettable by user (see rSt parameter below).	[l]			
rSt	Reset resettable counters: cYc and L rt To reset put 1 this parameter, switch off and then on again: cYc and L rt will show zero. Note that cYc is used to count cycles for CAI! message (see next parameter, nCY).	-			
nCY	Store thousand of cycles after that CAI! message appears on display. Ex. If this parameter is settled to 20, CAI! message appears when cYc reach 20.000 cycles.	-			
drn	Drain/Cleaning cycles performed. Similar to CYC but counts Cleaning Cycles.	-			
rCY	Numbers of cycles that can be made after a regeneration cycle (only for dishwashers with non-continuous water softener) [See paragraph 9.1 DETERGENT AND RINSE AID LEVEL SENSORS ACTIVATION.].	-			20
nrE	Regeneration cycle counter (only for water softener dishwasher) [See paragraph 9.2 DISHWASHERS WITH WASH TANK WATER CHANGE FREQUENCY CONTROL]. nrE only counts efficient regeneration cycles, i.e. those carried out with salt in the special container (only for dishwashers with incorporated continuous water softener)	-			
rES	Counter of regeneration cycles done without salt in the special container. (only for dishwashers with incorporated continuous water softener) [See paragraph 9.2 DISHWASHERS WITH WASH TANK WATER CHANGE FREQUENCY CONTROL].	-			

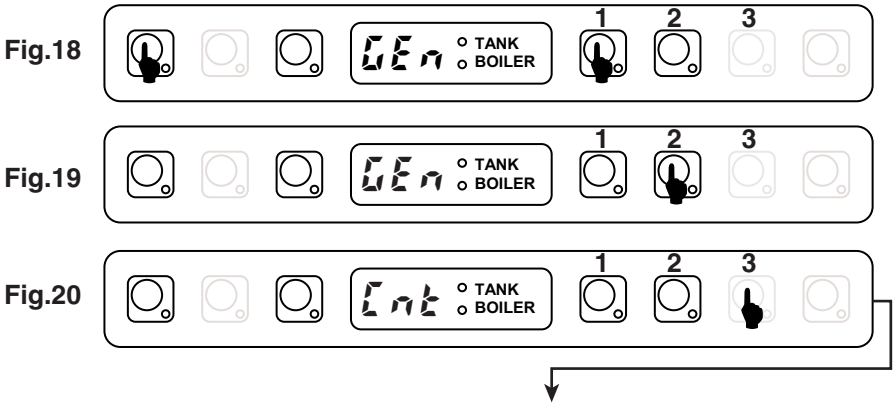


Fig. 18 USER setting mode (press for 5s).

Fig. 19 Next Family

Fig. 20 Counters Fam.: ENTER

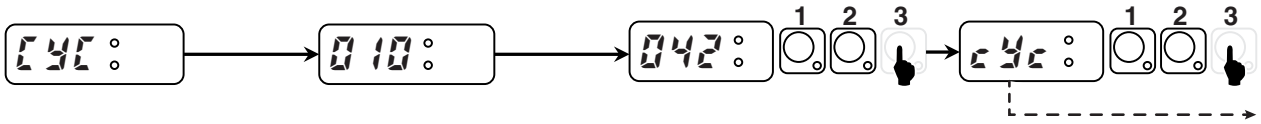


Fig. 21 CYCLES

Fig. 22 Thousand.

Fig. 23 Units.

Fig. 24 Next counter.

6 TEMPERATURE SETTING

In this paragraph is explained how to change temperature thresholds and all parameters related to boiler and tank.

6.1 FAC Factory Parameters

Sym.	Parameter Description	Unit	Min	Max	Factory Default
btC	Boiler Temperature: THRESHOLD. When boiler temperature reaches this value, heaters switch off.	[°F]	113	203	172
btH	Boiler Temperature HISTERESIS, (represent dead band). Heater switch on if boiler temperature is below: btC - btH	[°F]	35	50	35
bH,	Boiler Temperature: HIGH LIMIT. When boiler temperature reaches this value E 2 alarm appears. Put 0 to disable E 2 alarm.	[°F]	32	208	204
bLo	Boiler Temperature: LOW LIMIT. During boiler warm-up, temperature must increase at least bLo °C otherwise E 3 warning appears. Put 0 to disable E 3 warning.	[°F]	32	50	34

bFL	Boiler Filling Timeout. If filling time is longer than bFL, A 1 alarm appears. Put 0 to disable A 1 alarm.	[min]	0	42	5
bAJ	Boiler Temperature Adjust.	[°F]	32	44	39
bP	Boiler Priority (enable boiler wait function) 0=disabled 1=enabled	-	0	1	1
bSt	Booster Function Overheat gap over Boiler Temperature Threshold	[°F]	32	59	35
btd	Boiler temperature negative differential: when the dishwasher is in standby, boiler threshold becomes: btC - btd (Used to save energy during machine inactivity by keeping boiler water at a lower temperature).	[°F]	32	68	32
tbC	Tub Temperature: THRESHOLD When tank temperature reaches this value, heater switch off.	[°F]	104	185	145
tbH	Tub Temperature: HISTERESIS, (represent dead band). Heater switch on if tank temperature is below: tbC - tbH	[°F]	35	86	41
tH,	Tank Temperature: HIGH LIMIT. When tank temperature reaches this value C 3 alarm appears. Put 0 to disable C 3 alarm.	[°F]	32	203	167
tLo	Tank Temperature: LOW LIMIT. During tank warm-up, temperature must increase at least tLo °C otherwise E 2 warning appears. Put 0 to disable E 2 warning.	[°F]	32	50	34
tFL	Tank Filling Timeout. If filling time is longer than tFL, A 1 alarm appears. Put 0 to disable A 1 alarm.	[min]	0	42	20

To modify thresholds do the following:

- Switch OFF and switch ON the dishwasher;
- Enter into the FACTORY SETTING mode by pressing and hold down ON/OFF and BUTTON_2 keys for at least five seconds (Figure 25);
- Press BUTTON_3. The display shows alternatively the symbol btC (Figure 26) and the corresponding value 76 (Figure 27);
- Use BUTTON_1 key to decrease the value and BUTTON_2 key to increase (Figure 27);
- Press BUTTON_3 key to confirm. The display shows the next parameter (Figure 28) and the corresponding value (Figure 29);
- In the same way is possible to change the other parameters; when finished switch OFF and switch ON.

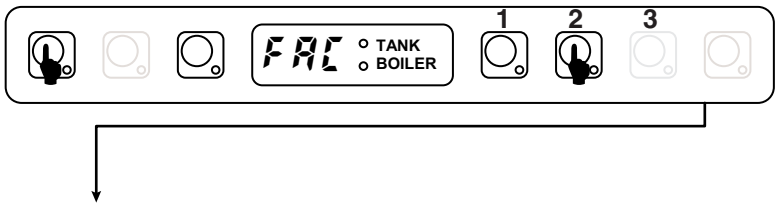


Fig. 25 Factory setting mode.

Fig. 26 Boiler temp. threshold

Fig. 27 Change value & Store

Fig. 28 Boiler Temp Hysteresis

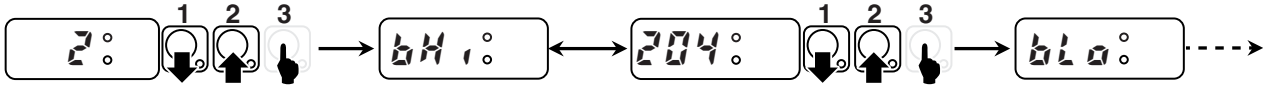


Fig. 29 Change value & Store

Fig. 30 Tank temp. High limit.

Fig. 31 Change value & Store.

7 CYCLE SETTING

IIn this paragraph is explained how to change cycle phases duration (see paragraph 7.1 CYCLE DIAGRAM).

- Switch on the dishwasher;
- Enter into the FACTORY SETTING mode: press and hold down ON/OFF and BUTTON_2 keys for at least **5 seconds** (Figure 32);
- Press BUTTON_2 key to select cycle 1 parameters.
- Press BUTTON_3. The display shows alternatively the symbol Ln1 (Figure 35) and the corresponding value 0 (Figure 36);
- Use BUTTON_1 key to increase the value and BUTTON_2 key to decrease (Figure 36);
- Press BUTTON_3 key to confirm. The display shows the next parameter (Figure 37) and the corresponding value (Figure 38);
- In the same way is possible to change the other parameters;.

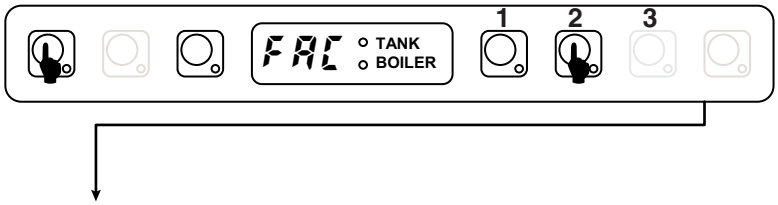


Fig. 32 Factory setting mode.

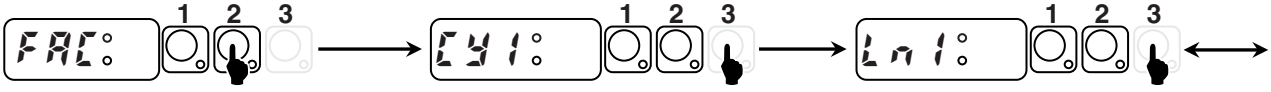


Fig. 33 Select next class. **Fig. 34 Cycle 1 Family: ENTER.** **Fig. 35 Wash duration [min].**

Fig. 36 Change value & Store **Fig. 37 Wash duration [sec].** **Fig. 38 Wash duration [min]..**

After settled all parameters referring Cycle 1, by pressing BUTTON_2 key is possible to change the Cycle 2 parameters (Figure 39), (Figure 40) and so on.

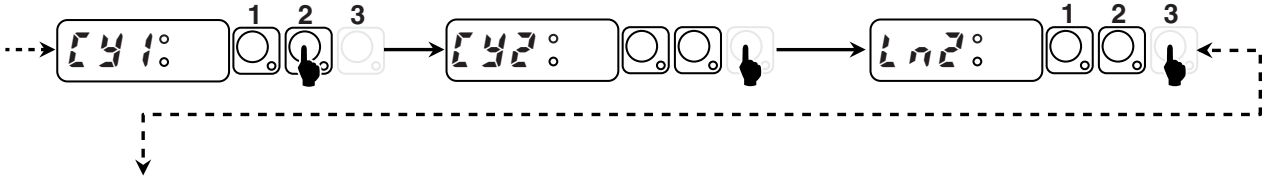
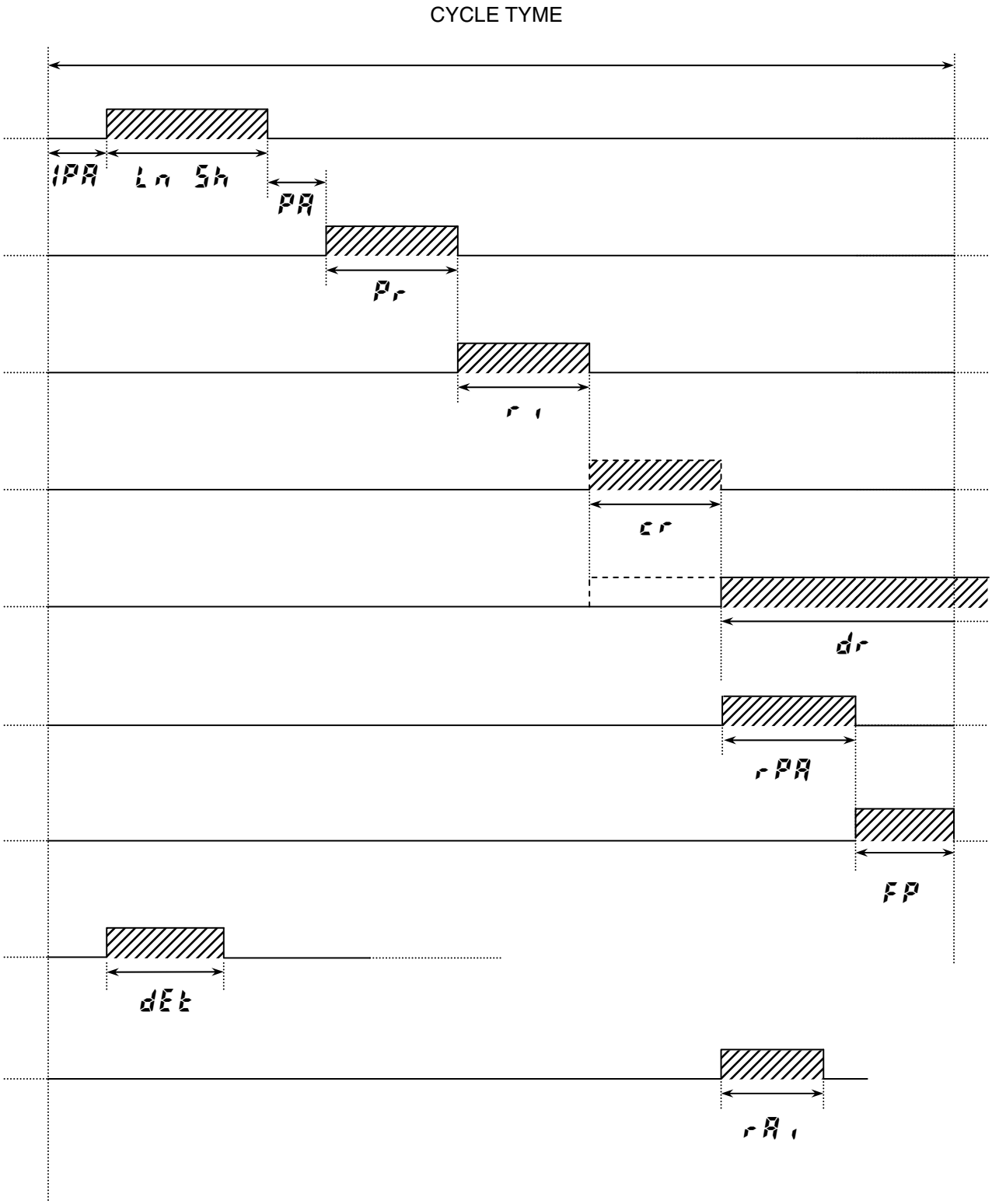


Fig. 39 Cycle 1 Parameters. **Fig. 40 Cycle 2 Parameters: ENTER.** **Fig. 41 Wash duration [min].**

Fig. 42 Cycle 2 Parameters: next Family **Fig. 43 Cycle 3 Parameters: ENTER** **Fig. 44 Wash duration [min].**

7.1 CYCLE DIAGRAM



LEGENDA:

Ln Sh = wash
Pr = pre rinse
r 1 = rrinse
cr = cold rinse
dr = drain
rPA = rinse pause
FP = final pause
dEt = detergent
rA1 = rinse aid

7.2 CY1 Cycle 1 Parameters

Sym.	Parameter Description	Unit	Min	Max	Factory Default
Ln1	Wash Phase Long	[min]	0	20	**0**
Sh1	Wash Phase Short	[s]	1	60	**35**
PA1	Pause	[s]	0	20	**4**
Pr1	Pre-rinse Duration	[s]	0	30	**0**
r n1	Rinse Phase Duration	[s]	10	45	**16**
cr1	Cold Rinse Phase Duration	[s]	0	50	**0**
dr1	Drain	[s]	0	40	**16**
FP1	Final Pause at End of Cycle	[s]	0	60	**0**
tL1	Long wash time in mode Thermal Label	[min]	0	60	**0**
tS1	Short wash time in mode Thermal Label	[s]	0	60	**59**

7.3 CY2 Cycle 2 Parameters

Sym.	Parameter Description	Unit	Min	Max	Factory Default
Ln2	Wash Phase Long	[min]	0	20	**0**
Sh2	Wash Phase Short	[s]	1	60	**40**
PA2	Pause	[s]	0	20	**4**
Pr2	Pre-rinse Duration	[s]	0	30	**0**
r n2	Rinse Phase Duration	[s]	10	45	**16**
cr2	Cold Rinse Phase Duration	[s]	0	50	**0**
dr2	Drain	[s]	0	40	**16**
FP2	Final Pause at End of Cycle	[s]	0	60	**0**
tL2	Long wash time in mode Thermal Label	[min]	0	60	**2**
tS2	Short wash time in mode Thermal Label	[s]	0	60	**12**
bt2	This parameter allows having a different rinsing temperature for the second cycle. Only values above 113°F are allowed.	[°F]	32	203	**32**

7.4 drn Drain/Cleaning Cycle Parameters

Sym.	Parameter Description	Unit	Min	Max	Factory Default
Idr	Initial Drain Phase Duration	[s]	0	240	**40**
Fdr	Final Drain Phase Duration	[s]	0	240	**80**
drt	Drain without cleaning cycle	-	0	1	**0**
Cbd	Number of wash cycles possible between one drain cycle and the next	[wash cycles]	0	200	**0**
dto	Indicates the maximum permissible delay between drain cycle start and the reaching of a tank level below the work level. If the set delay is exceeded, alarm B1 occurs.	[s] x 10	0	100	**18**

8 OTHER PARAMETERS

8.1 dPA Dishwashing Parameters

Sym.	Parameter Description	Unit	Min	Max	Factory Default
IPA	Initial Pause before start washing (for ALL cycles)	[s]	0	10	**0**
dLY	Delay for the 2nd wash pump (PW only)	[s]	0	10	**3**
Pdr	Active a drain phase at the end of washing phase.	[s]	0	40	**0**
rPA	Duration of pause after rinse cycle (valid for dishwashers with door/hood lock device) [See par. 9.1 DETERGENT AND RINSE AID LEVEL SENSORS ACTIVATION].	[s]	0	60	**0**
C F	Celsius/Fahrenheit selection 0 = Celsius 1 = Fahrenheit	-	0	1	**1**
r tE	Rinse Temperature Display. Enable rinse temperature probe (if installed). 0 = during rinse phase the display shows boiler temperature; 1 = during rinse phase the display shows rinse temperature;	-	0	1	**0**
PPL	Pulse Per Litre. This parameter must be settled in according to flow meter installed [present up to software version 3.12].	[p/l]	0	255	**0**
CdE	Number of wash cycles performable without detergent (only for dishwashers with external detergent level sensor – par. 9.1 DETERGENT AND RINSE AID LEVEL SENSORS ACTIVATION) [LES: 1]	-	0	5	**5**
tLE	Enable mode Thermal Label: if set to 1 it enables the mode and disables the "endless cycle" button	-	0	1	**0**
bEL	Boiler temperature in mode Thermal Label.	[°F]	113	206	**186**
tEL	Tank temperature in mode Thermal Label.	[°F]	104	194	**167**
tHt	Tank temperature hysteresis in mode Thermal Label.	[°F]	32	86	**35**

8.2 rOn Read Only Parameters

Sym.	Parameter Description	Unit	Min	Max	Factory Default
rEL	Main Board Firmware Release	-	-	-	-
rLS	Water softener board software version. (only for dishwashers with incorporated continuous water softener).	-	-	-	-
ACC	Active column: indicates through which of the two continuous water softener columns boiler filling is being carried out: 0 = column A and 1 = column B (only for dishwashers with incorporated continuous water softener).	-	-	-	-
CAI1	When CAI1 message appears, the parameter value becomes 3. After maintenance, to clear CAI1 message, insert 0.	-	-	-	-
C 8	When C 8 alarm appears, the machine is frozen and this parameter is 3. After maintenance (see alarm codes document), insert 0 to enable the machine.	-	-	-	-
F21	This alarm appears in case of malfunctioning in the continuous water softener. To facilitate fault-finding, see par. In the case of a shorted probe error (C 5, C 7 e C11), the displayed temperature is 210°F..	-	-	-	-

8.3 HCP Communication and HACCP Parameters

Sym.	Parameter Description	Unit	Min	Max	Factory Default
SEr	Serial Device 0 = 8N1 1 = PC connection (DAAS 8E1) 7 = HACCP network (ECAP 8E1+LK485) (LK485 board is necessary) 9 = Dishwashers with incorporated continuous water softener 16 = HACCP printer (8N1) 32 = MODEM GSM (DAAS 8N1) 33 = MODEM GSM (DAAS 8E1) 48 = Hyper Terminal (8N1)	-	0	63	**1**
Adr	Address. This parameter specifies the address of the appliance into the 'HACCP_network'. Works only if 'HACCP network' is selected (see above parameter).	-	0	255	**1**
Prn	Print parameter table.	-	0	1	**1**
bt	HACCP 'Basic' (printer) Boiler temperature: high limit.	[°F]	113	203	**194**
bH	HACCP 'Basic' (printer) Boiler temperature: gap below high limit.	[°F]	32	68	**50**
tt	HACCP 'Basic' (printer) Tank temperature: high limit.	[°F]	95	167	**154**
tH	HACCP 'Basic' (printer) Tank temperature: gap below high limit.	[°F]	32	68	**50**

8.4 CFG Configuration Parameters

Sym.	Parameter Description	Unit	Min	Max	Factory Default
typ	Dishwasher Model: 0 = UNDERCOUNTER 1 = POT WASHER 2 = AUTOMATIC POT WASHER 3 = MEDICAL LINE DISHWASHER WITH LOCK DOOR/HOOD DEVICE	-	0	3	**0**
boi	Boiler type: 0 = ATMOSPHERIC BOILER 1 = PRESSURE BOILER 2 = EXTERNAL BOILER	-	0	2	**0**
doo	Door type: 0 = AUTOMATIC HOOD 1 = MANUAL HOOD 2 = FRONT LOADING 3 = POT WASHER		0	3	**2**
dFL	Default model (see Default tables): 1 = HOOD TYPE 2 = POT WASHER 3 = UNDERCOUNTER	-	0	3	**-**
trc	Solid State Relay (TRIAC). 0 = not enabled; 1 = **SOFT START** enabled; 3 = **SLOW SOFT START** enabled (works only on boards with Solid State Relay).	-	0	3	**1**
b_t	Boiler/Tank heating swap: 0 = boiler heaters and tank heater can work simultaneously; 1 = swap enabled: tank heating starts only boiler temperature is reached; 2 = The booster heating elements and the wash pump have priority. The tank heating element is activated only when the booster has reached the set temperature and the wash pump is not working. (Note: disabling this function changes the global electrical power of appliance; before enabling this function check available power, supply cable section, fuses in according to User Manual).	-	0	2	**1**
btF	Tank Filling Mode Enable filling tank by means of rinsing cycles. Ex: btF = 167 means that boiler water is heated at 167°F, then follows a rinse phase and so on until tank is full. If btF = 32 the tank is filled by solenoid valve in the traditional way (On machines with incorporated continuous water softener, even if btF is set to 32, filling occurs through subsequent rinses).	[°F]	32	185	**167**
LES	Detergent Level Switches 0 = level switches not enabled; 1 = enable detergent level switches;	-	0	1	**0**
UI	USER INTERFACE MODEL 24 = under counter, Veetsan See parameter rEL (family ran) to check the software version installed in the board.	-	0	27	**25**

Sym.	Parameter Description	Unit	Min	Max	Factory Default
rE	Enable “regeneration cycle” key (only for dishwashers with non-continuous water softener) [See paragraph 9.1 DETERGENT AND RINSE AID LEVEL SENSORS ACTIVATION].	-	0	1	**0**
ALr	ALARMS ENABLE 0 = alarms disabled (to disable also warnings see bLo and tLo); 1 = alarms enabled; If this function is disabled, faults can be detected so display do not shows any alarm code.	-	0	1	**1**
AAG	Air gap with float level sensor normally closed (the level sensor is closed when the boiler is empty). E.g. the boiler level sensor for machines with incorporated continuous water softener.	-	0	1	**0**
FrG	Forced start of a resin regeneration cycle (only for dishwashers with incorporated continuous water softener). [See paragraph 9.2 DISHWASHERS WITH WASH TANK WATER CHANGE FREQUENCY CONTROL].	-	0	2	**0**
SrW	Max. rinse water hardness (only for dishwashers with incorporated continuous water softener). After modifying, disconnect and reconnect the machine's main power supply by means of the main switch. [See paragraph 9.2 DISHWASHERS WITH WASH TANK WATER CHANGE FREQUENCY CONTROL].	°fH	4	14	**10**
bPo	Boiler heating control. Defines the max. permissible temperature difference during boiler heating in a time interval of 2 minutes and 30 seconds.	°F	77	176	**122**

8.5 dbG Parameters for automatic hood type dishwashers

Sym.	Parameter Description	Unit	Min	Max	Factory Default
t 1	DELAY_K1 Time (during hood lifting) within which S3” must return to the rest position.	0.1 s	0.0 s.	20.0 s	**15**
t 2	HOOD_TOUT TIMEOUT – max. time allowed for complete hood opening/closing.	0.1 s	0.0 s	20.0 s	**200**
t 3	DELAY_K1_S3 During hood lowering, firstly S3” must cut in and then after a time t 3 .the bottom limit switch S3.	0.1 s	0.0 s.	20.0 s	**15**
t 4	DELAY_K Time within which K and K’ must be both closed or both open.	0.1 s	0.0 s.	20.0 s	**10**
t 5	DELAY_S3 Time during hood lifting within which the bottom limit switch must return to the rest position..	0.1 s	0.0 s.	20.0 s	**20**
t 6	DELAY_S5 Time during hood lowering within which the top limit switch must return to the rest position.	0.1 s	0.0 s.	20.0 s	**20**
AL_	Displays the last alarm code relative to automatic hood type dishwashers.	-	-	-	**0**
Ith	Parameter only valid for hood type models. Hood lifting motor absorption threshold. (50 units correspond to a current of approx. 1 ampere).	-	0	250	**100**

9 SPECIAL FEATURES

9.1 DETERGENT AND RINSE AID LEVEL SENSORS ACTIVATION

By setting the parameter LES (in the CFG family) to 1, management of the level sensors located inside the external detergent and rinse aid tanks is enabled. During the rinse phase, when the rinse aid inside the tank has finished, the message rA 0 appears on the display.

When the detergent inside the tank is finished, the message dEt 0 is displayed and after a number of wash cycles equal to CdE (in the dPA family) the dishwasher inhibits the activation of other wash cycles. Therefore the detergent level in the tank must be restored.

9.2 DISHWASHERS WITH WASH TANK WATER CHANGE FREQUENCY CONTROL

WARNING:

Function included starting from firmware version 5.00.

If the parameter Cbd (Cycles before drain) of the family drn is set to a value higher than 0, a wash tank water change frequency control is enabled. The purpose of this function is to display a message telling the customer when a tank water drain cycle is required. In this way, if the customer does what the machine suggests, washes will be done with sufficiently clean water.

The value set in the parameter Cbd (Cycles before drain) indicates the number of wash cycles possible between one tank water drain cycle and the next. When the number of wash cycles done since the last tank water change reaches the value contained in the parameter Cbd (Cycles before drain), the display shows the message "drn" at the start of a wash cycle and the message "drn End" at the end of the same cycle. When these messages appear on the display at the start and end of the wash cycle, a tank water drain cycle must be done to ensure washes with sufficiently clean water.

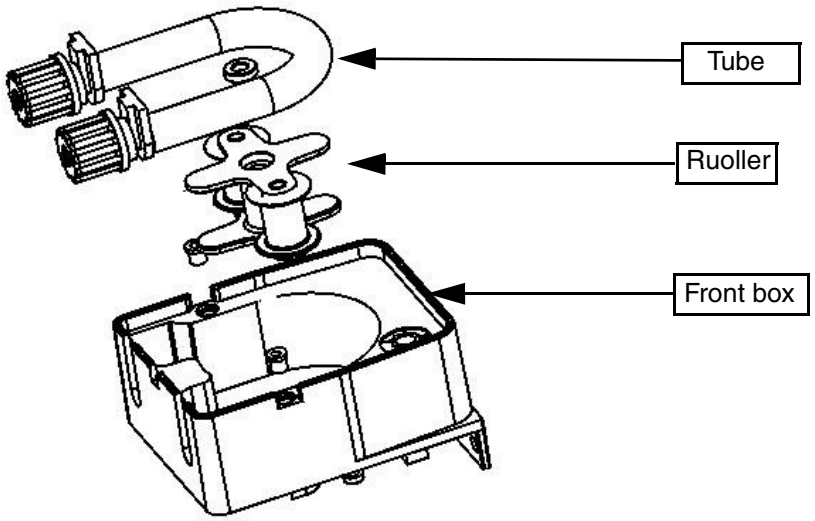
WARNING:

If the tank drain cycle is not done, the machine does not shut down, but will continue to do wash cycles, showing the messages drn and drn End at the start and end of the wash cycle respectively.

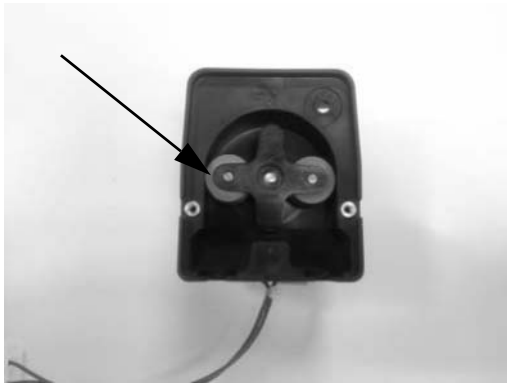
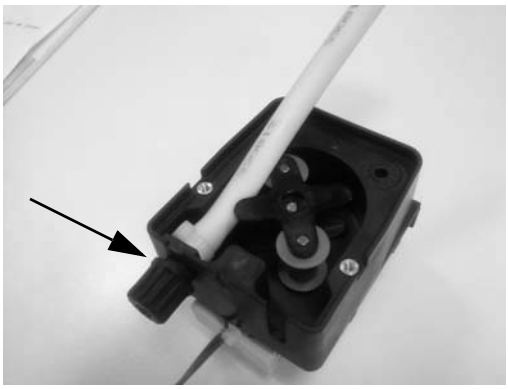
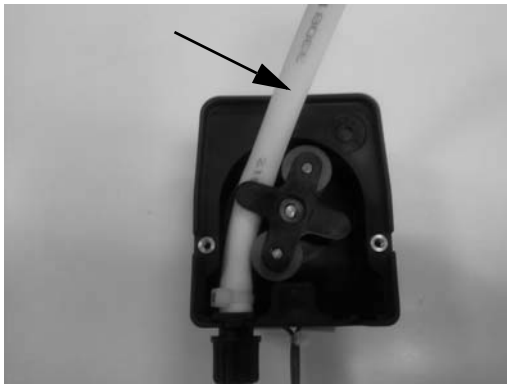
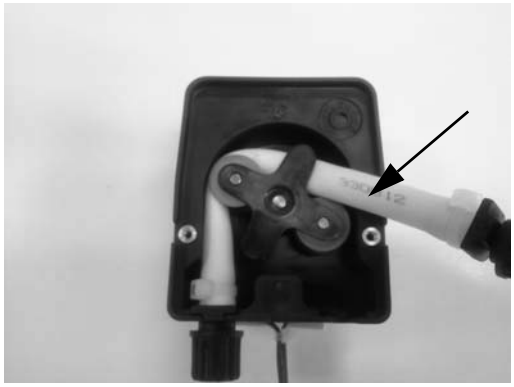
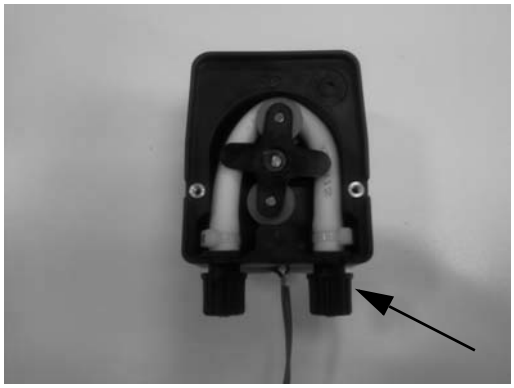
9.3 PERISTALTIC TUBE FITTING AND REPLACEMENT INSTRUCTIONS

Described below is the procedure for inserting and removing the tubes from the peristaltic pumps, in case of tube replacement.

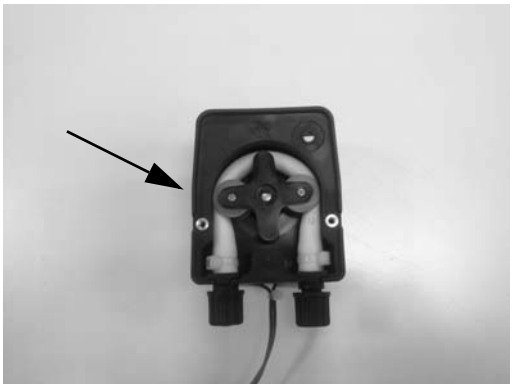
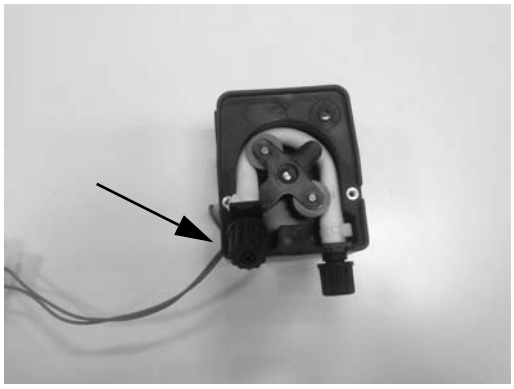
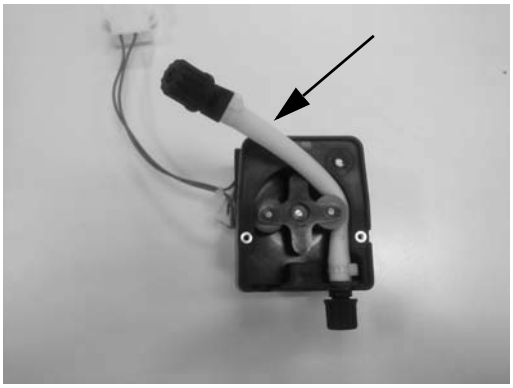
An exploded view of the parts involved in the tube fitting and removal operations is given below.



STEP 1 - FITTING THE TUBE

1. Position the roller.	2. Insert the tube of the suction part, turning the roller clockwise.
	
3. Keep the tube in the seat in the housing and continue turning the roller clockwise, <u>being careful not to damage the tube.</u>	4. Keep the tube in the seat in the housing and continue turning the roller clockwise.
	
5. Turn the roller a full 360°.	6. Make sure to fit the union in the special seat (delivery).
	

STEP 2 - REMOVING THE TUBE

1. Position the roller as shown in the figure.	2. Lift the tube at the suction part and turn the roller at the same time. Guide the tube, keeping it raised, and turn the roller.
	
3. Remove the tube.	
	

10 MAIN BOARD CONFIGURATION

When receiving an electronic board (spare part) may be necessary to configure it in according to the machine where has to be replaced

4. With the machine **CODE** enter into the following table and read the corresponding **Prog.** number
5. Follow the instructions reported into the corresponding **Prog.XXX** sheet (next pages).
6. With the machine **CODE** find the **Layout** number in Par. 12.2 CONNECTORS LAYOUT.

10.1 CODE -> Prog. TABLE

MODEL	CODE	Prog.	Layout
VDU30	**502350**	**149**	**09**

10.2 PROGRAMMING SHEETS

VDU30				PROG 149
1.	Switch OFF and then switch ON the machine.			
2.	CFG	Enter into CFG parameter family and set the following parameters.		
		tYP	0	Hood Type like working cycles.
		bo1	0	Atmospheric boiler.
		doo	2	Front loading door type.
		dFL	3	Default values for Undercounter models.
		trc	1	SOFT START ENABLED.
		b_t	1	Tank heater works only if boiler temperature reached.
		btF	75	Enable filling tank by means of rinsing cycles.
		LES	0	Detergent level switches not enabled.
		UI	24	Select user interface under counter model.
		rE	0	Regeneration cycle disabled.
		ALr	1	ALARMS ENABLED.
3.	Switch OFF and then switch ON the machine.			
4.	Modify Factory parameters:			
	FAC	Enter into FAC parameter family.		
		btC	84	Boiler Temperature Threshold.
		bAJ	0	Boiler Temperature Adjust.
		btd	3	During stand-by boiler is kept at lower temperature than Temperature Threshold.
		ttC	68	Tank Temperature Threshold.
		ttH	2	HISTERESIS of Tank Temperature.
5.	Modify the cycle parameters:			
	CY1	Cycle 1 parameters family.		
		Ln1	1	Long Wash Phase [min]
		Sh1	38	Short Wash Phase [s]
		PA1	4	Pause [s]
		r.1	12	Rinse Phase Duration [s]
		FP1	6	Final Pause [s]
	CY2	Cycle 2 parameters family..		
		Ln2	3	Long Wash Phase [min]
		Sh2	38	Short Wash Phase [s]
		PA2	4	Pause [s]
		r.2	12	Rinse Phase Duration [s]
		FP2	6	Final Pause [s]
	dPA	Set other parameters.		
		C F	1	Fahrenheit
6.	Switch OFF and then switch ON the machine.			
7.	Modify Detergent dosage:			
	GEn	Enter into GEn parameter family.		
		dEt	6	Detergent Dosage During Cycle Execution (during wash phase)
		rA1	3	Rinse Aid Dosage During Cycle Execution (when refilling boiler)
8.	Switch OFF and then switch ON the machine.			

WARNING:

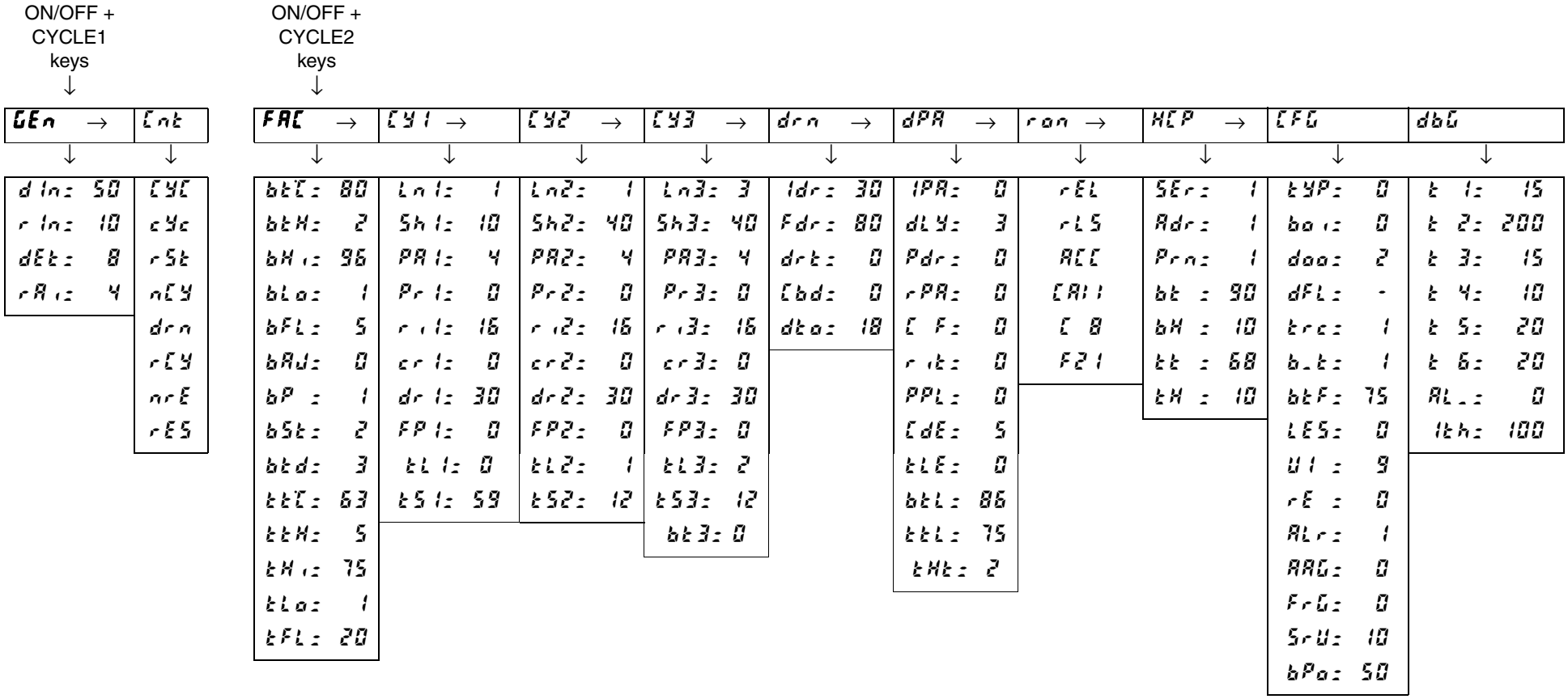
To set the board parameters, carefully follow the order given in this programming file, from point 1 to point 7.

WARNING:

When modifying parameter dFL, all the parameters (except those belonging to the CFG family) assume the default values according to the tables in section 11 DEFAULT VALUES. The parameters of the CFG family are not modified.

11 DEFAULT VALUES

UNDERCOUNTER



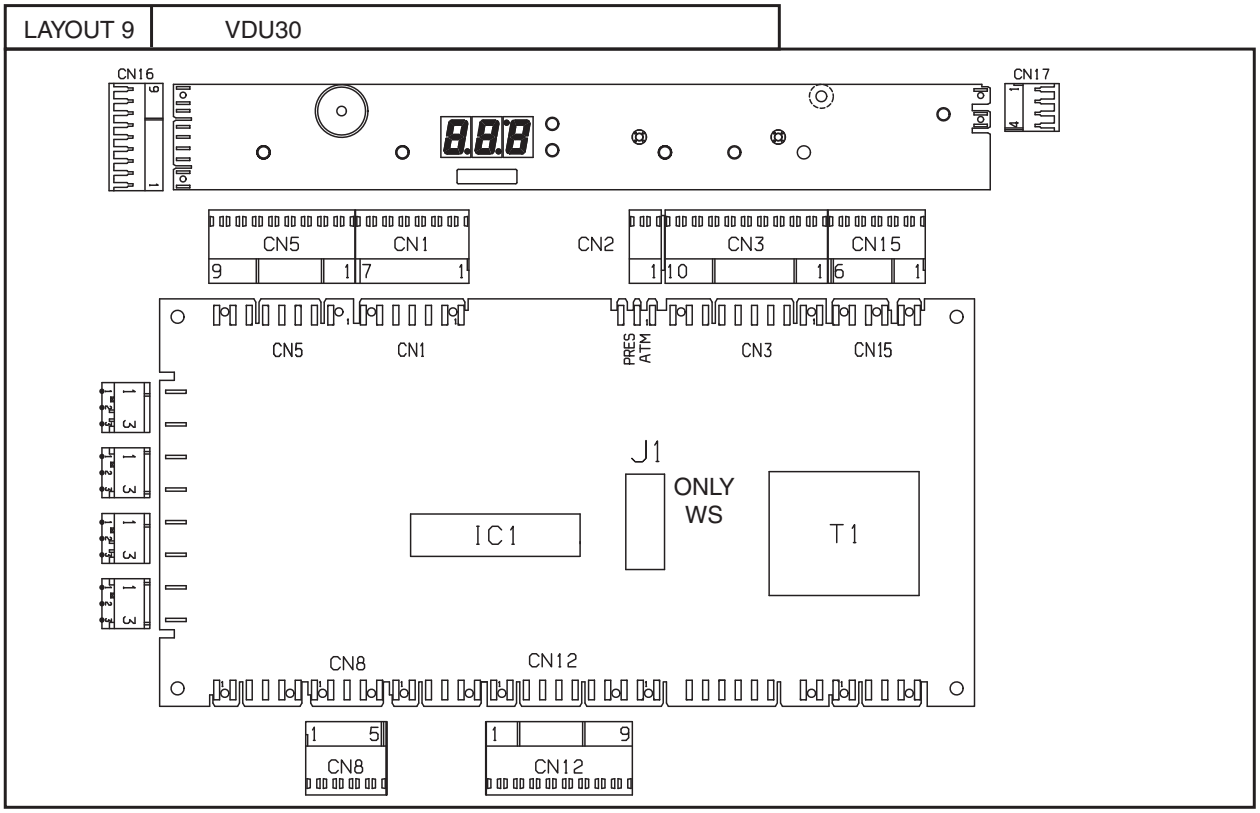
12 USER INTERFACE AND MAIN BOARD CONNECTORS

12.1 MAIN MALFUNCTIONS NOT DUE TO THE MAIN BOARD

The display shows CLOSE with door/hood closed	Check door/hood micro/sensor
No cycle starts	Check the user interface buttons (have they remained pressed? etc.)
A cycle fails to start	Is a user interface button extension missing?
After replacing the main board only the 3rd cycle starts	The main board is still configured for LS5/WT4.
Cycle time longer than that foreseen	Does the boiler work? Is the feed water at 50°C?
Noisy wash pump (only on HT and PP versions)	Check the current for single phase during operation.

12.2 CONNECTORS LAYOUT

LAYOUT 9 VDU30



KEY

CN1 Rinse pump/wash pump/solenoid valve outputs
CN2 Pressure/atmospheric dishwasher solenoid valve connection
CN3 ECOTEMP transformer and detergent/rinse aid dispenser outputs
CN5 Tank/boiler temperature sensor inputs
CN8 Energy peak controller input
CN12 User interface inputs/outputs
CN15 Overflow/tank level/board feed input
CN16 User interface inputs/outputs and hood/door sensor input
CN17 Door microswitch connection

13 ALARM MESSAGES AND TROUBLESHOOTING

13.1 ALARMS THAT STOP THE DISHWASHER

A 1	Want of water
	Is the water cock open? Does the water load solenoid valve work? Is the water feed flow a min. of 5 l/min? **13.2** Is the water inlet filter clean? **KEY** **CN1** Rinse pump/wash pump/solenoid valve outputs

E 8	Rinsing is not done regularly for 2 consecutive cycles
	Are the rinse arms clogged? Does the rinse pump work correctly? Is there water in the level sensor tube? Is there scale in the boiler? Does the boiler level sensor work properly?
	ONLY FOR MACHINES WITH CONTINUOUS WATER SOFTENER: Does the boiler level sensor located inside the water softener work properly? Does the float of the boiler level sensor, located inside the water softener, work properly? Is it free to move upwards and downwards and vice versa? Is the connection from the boiler level sensor to the main board efficient?
	ATTENZIONE: RESETTING THIS ALARM WITHOUT FIRST ELIMINATING THE CAUSE IS DANGEROUS; THE BOILER HEATING ELEMENTS COULD WORK DRY, FURTHER DAMAGING THE INTERNAL PARTS OF THE DISHWASHER. **ATTENZIONE**: E 8 IT MUST BE MANUALLY RESET AFTER ELIMINATING THE CAUSE OF THE MALFUNCTION.

14.2 ALARMS THAT DON'T STOP THE DISHWASHER

b 1	Drain not efficient
	Has the overflow been removed? Is the water drain blocked? Is the drain pump blocked? Are the air trap and tank pressure switch clean? Is there a constriction in the drain tube? Is the pump breather pipe returning to the tank clogged or constricted? Does the tank pressure switch work properly? Is there a hole in the drain tube (only for versions with drain pump)?
b 2	Overflow alarm
	Is the water drain blocked? Are the air trap and tank pressure switch clean? Does the tank pressure switch work properly? Is the load solenoid valve blocked? (E1 - LOAD_EV) Is the load solenoid valve relay stuck? (RL8 - LOAD_EV)

E 1	Boiler temperature rise too fast
	Does the boiler level sensor work properly? The boiler could be empty. Are non-original power resistances installed?
E 2	Boiler temperature too high
	Has the boiler temperature been changed (bLE - increased above 194°F)? Has the software alarm value been modified (bH 1)? Does the boiler level sensor work properly? Is the boiler relay stuck (see RL2, RL3, RL4)?
E 3	Tank temperature too high
	Is the feed water above 140°F? Has the software alarm value been modified (tH 1)? Is the rinse water temperature too high? Is the tank relay stuck (RL5 - TUB_HEAT)?
E 4	Tank temperature sensor out of order
	Is the temperature sensor broken or disconnected (NT1)? Is the temperature sensor connector correctly inserted?
E 5	Tank temperature sensor out of order
	Is the temperature sensor short-circuited (NT1)?
E 6	Boiler temperature sensor out of order
	Is the temperature sensor broken or disconnected (NT2)? Is the temperature sensor connector correctly inserted?
E 7	Boiler temperature sensor out of order
	Is the temperature sensor short-circuited (NT2)?

E 10	Rinse temperature sensor out of order (only on machines with temperature sensor on the rinse circuit)
	Is the temperature sensor broken or disconnected? Is the temperature sensor connector correctly inserted?
E 11	Rinse temperature sensor out of order (only on machines with temperature sensor on the rinse circuit)
	Is the temperature sensor short-circuited?

WARNING:

Alarms E 2, E 6 and E 7 lock the boiler temperature control.

Alarms E 3, E 4 and E 5 lock the tank temperature control.

In the case of alarms E 6 and E 7, the boiler waiting phase is not executed (the rinse may be performed with cold water) and, during the initial warm-up and subsequent rinses (bEF > 0), the boiler heating phase is not executed.

In the case of an open probe error (E 4, E 6 e E 10), the displayed temperature is 50°F

In the case of a shorted probe error (E 5, E 7 e E 11), the displayed temperature is 210°F.

E 1	Communication error
	Is the connection between main board and control panel correct? Are the connectors correctly connected? Are connector contacts clean?
E 2	Tank temperature low
	Does the tank heating element work properly? Are the connectors correctly connected? Are the dishwasher feed voltage and current correct? Is the relay RL5 on the board disconnected or faulty?
E 3	Boiler temperature low
	Does/do the boiler heating element/s work properly? Are the connectors correctly connected? Does the possible remote control switch connected to the heating element work correctly? Is there power at the remote control switch input terminals? Does relay RL2 on the board work properly? CAUTION: IF THERE IS A MALFUNCTION ON RELAY RL2 AND THE BOILER HEATING ELEMENTS ARE FED BY MEANS OF A REMOTE CONTROL SWITCH, THE BOARD DOES NOT HAVE TO BE REPLACED; JUST MOVE THE BOILER HEATING ELEMENT CONNECTOR TO ONE OF THE TWO FREE POSITIONS ON THE BOARD. CAUTION: WHEN ONE BRANCH OF THE HEATING ELEMENT DOES NOT WORK AND THE OTHER TWO CONTINUE TO FUNCTION, ON REACHING THE SET TEMPERATURE VALUE, ALARM 3 DISAPPEARS AND REAPPEARS IN THE SUBSEQUENT RINSE PHASE. THIS ALSO OCCURS WHEN A PHASE IS MISSING.

15 LIST OF PARAMETERS FOR SUBSEQUENT VERSIONS

The parameters listed below, even if present inside the software, cannot be used in appliances currently in production.

Family GEn:

- parameter ACd
- value dEt : 183

Family Str

Family CFG - alarm F8

- parameter AAG, the maximum value it can be set to is 3, but actually the only significant values are 0 and 1. By setting AAG to 3, alarm F8 may appear, also implemented by the firmware, but not used in any current application.